



Strategic Initiative 2 – Accelerate Silo 3

Subproject Description

Silo 3, located adjacent to Silos 1&2 on the western periphery of the site, is an unbermed concrete silo that contains 5,088 cubic yards of cold metal oxides, a by-product material generated during Fernald's



uranium processing operations. The predominant radionuclide of concern identified within the material is thorium-230, which is produced from the natural decay of uranium-238.

The overall objective of the Silo 3 subproject is to safely retrieve the metal oxides from the concrete silo and package and transport the oxides for off-site disposal.

Execution Strategy

The subproject will use a combination of vacuum and mechanical retrieval systems to retrieve the metal oxides from Silo 3. This material contains several RCRA metals and the Operable Unit 4 Record of Decision established that some RCRA requirements are relevant and appropriate for managing and remediating the waste. However, Silo 3 material is classified as "by-product material," as defined under Section 11e.(2) of the Atomic Energy Act of 1954, which means that it is specifically exempt from regulation as solid waste under RCRA 40 CFR Part 261.4(a)(4).

The final remedial action will require that the Record of Decision be amended to modify the current remedy to eliminate the requirement for treatment (immobilization of RCRA metals) of the Silo 3 material. This modification is currently being discussed with regulators and stakeholders. A key requirement for gaining acceptance of this amendment will be to demonstrate the ability to safely handle and transport the fine-grained Silo 3 material. This will be accomplished through material handling and dispersability studies that will undergo external peer review from specialty contractors and powder-packaging experts.

The waste will be packaged in approximately 1,700 IP-2 soft-sided containers, each having a capacity of up to 3 cubic yards. The soft-sided containers will be loaded in approximately 189 cargo containers (nine soft-sided containers per cargo container), placed on rail flatcars, and shipped concurrently with waste from the Waste Pits subproject on 48 unit trains to Envirocare for disposal as oversized debris in the Envirocare 11e.(2) cell. Although Envirocare is currently prohibited from disposing of oversized debris in this cell, the facility is pursuing a modification to their NRC license to allow for disposal of oversized debris in the 11e.(2) cell. In the event the NRC decides that waste cannot be received as 11e.(2) material, Silo 3 material can currently be disposed at Envirocare at a higher cost in the Class A cell without treatment as low-level radioactive waste exempt from RCRA treatment.

Following retrieval of the metal oxides from Silo 3, the structure will undergo decontamination (i.e., interior wash and fixative application) and will then be turned over to the Facility D&D subproject for demolition and on-site disposal. Jacobs Engineering will perform the design for the Silos 3 subproject, and Fluor Fernald will provide construction management and direct the operations, transportation, and shipment activities.

New Strategies to Achieve 2006 Closure

In order to accelerate site closure from 2009 to 2006, the following initiatives were developed for the Silo 3 subproject:

- Eliminate requirement for treatment to immobilize metals because the material is 11e.(2) "by-product" material and treatment is not needed for protective waste disposal
- Dispose of the Silo 3 material at a permitted off-site commercial disposal facility, which allows for significant cost savings associated with waste transport and disposal and schedule risk mitigation
- Adopt a safer, more cost-effective disposal pathway with bulk transport by rail of the Silo 3 material, which will significantly improve waste handling logistics over the former plan to truck the material to the Nevada Test Site



Current Subproject Status

The Silo 3 subproject is currently 10% complete. The final design is being developed and the results and documentation of design data studies are being compiled. A Silo 4 demonstration

Subproject Status:

- Subproject is 10% complete
- Final design is being completed
- Silo 4 demonstration is being implemented in the field
- Cost to Complete: \$29 million
- Subproject will be complete in June 2005

is currently being implemented in the field. Silo 4 is an empty, unused silo located adjacent to Silo 3 and is the same size, shape, and construction as Silo 3. The Silo 4 demonstration includes reinforcing the silo and then cutting an opening in the wall of the silo to simulate the activities that will be performed on Silo 3 during waste retrieval. Following completion of design, the waste retrieval and loadout systems will be constructed and operated. The subproject is currently on schedule to complete cleanup in June 2005.



Key Actions and Responsibilities

The following table lists the key actions needed to accelerate the Silo 3 subproject to meet 2006 site closure. Also included are the responsible organizations, the status of the key action, and the date that the key action is needed. The key actions for all eight strategic initiatives (subprojects) are compiled in Attachment 2.

| Key Actions and Responsibilities for Silo 3 | | | |
|---|-----------------------------------|-------------|-------------|
| Action | Responsibility | Status | Date Needed |
| Modify Envirocare NRC license to allow disposal of oversized debris | DOE-HQ, DOE-OH, and Fluor Fernald | In progress | 4/1/03 |
| Amend Record of Decision to eliminate treatment of Silo 3 waste | DOE-OH and Fluor Fernald | In progress | 4/1/03 |